

RECLAMATION

Managing Water in the West

Draft Environmental Assessment

Five-Year Warren Act for Westlands Water District

EA-20-008

CGB-EA-2020-032

Estimated Lead Agency Total Costs
Associated with Developing and
Producing this EA
\$7,000



— BUREAU OF —
RECLAMATION

Interior Region 10 California-Great Basin
California*, Nevada*, Oregon*

*Partial

South-Central California Area Office

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Mission Statements

The mission of the Department of the Interior is to conserve and manage the Nation's natural resources and cultural heritage for the benefit and enjoyment of the American people, provide scientific and other information about natural resources and natural hazards to address societal challenges and create opportunities for the American people, and honor the Nation's trust responsibilities or special commitments to American Indians, Alaska Natives, and affiliated island communities to help them prosper.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

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Section 1 Introduction

1.1. Background

Unprecedented water management challenges due to severe drought were experienced within California over the last decade. As a result, South-of-Delta Central Valley Project (CVP) contractors, such as Westlands Water District (Westlands), needed to make the most and best use of the limited available water supplies. In order to better manage their limited water supply, Westlands proposed the Westlands Groundwater Pumping and Conveyance Project. As part of this project, Westlands requested a Warren Act contract to convey groundwater (hereafter referred to as non-CVP water) in the San Luis Canal for delivery to its in-district agricultural users located in Fresno and Kings Counties (Figure 1). Westlands also requested the flexibility to perform operational exchanges of their available CVP supplies within San Luis Reservoir for storage of the non-CVP water within the reservoir and/or for delivery to their agricultural users located upstream of the points of introduction.

The Bureau of Reclamation (Reclamation) reviewed the proposed Warren Act contract and operational exchanges for a 5-year term in the Environmental Assessment (EA)-15-001. A Finding of No Significant Impact (FONSI) was signed June 5, 2015. The proposed Westlands Groundwater Pumping and Conveyance Project would allow for Westlands to introduce up to 30,000 acre-feet (AF) per year of non-CVP water supplies into the San Luis Canal in years in which Westlands' CVP allocation were 20 percent or less for direct delivery to agricultural users located throughout the district or exchanged for delivery upstream or as storage within San Luis Reservoir. The EA analyzed impacts to water resources (including surface water, groundwater, and land subsidence), land use, biological resources, and environmental justice, as well as those potential cumulative impacts to these resources. The EA/FONSI are hereby incorporated by reference.

Westlands has requested a new Warren Act contract to allow the continued annual introduction, conveyance, and storage of up to 30,000 AF of pumped groundwater into federal facilities through 2025. The source of the water would be the same groundwater wells located throughout the district under the previous program, as well as several proposed additions.

1.2. Need for the Proposed Action

Reclamation needs to assess the potential impacts of approving the proposed Warren Act contract for conveyance of pumped groundwater in order to maximize the water supplies available to Westlands in fluctuating hydrologic conditions. Westlands may not have adequate water supplies to meet the needs of their customers during years with lower CVP allocations. The purpose of the Proposed Action is to provide a conveyance mechanism to deliver supplemental supplies to support existing crops within the districts.

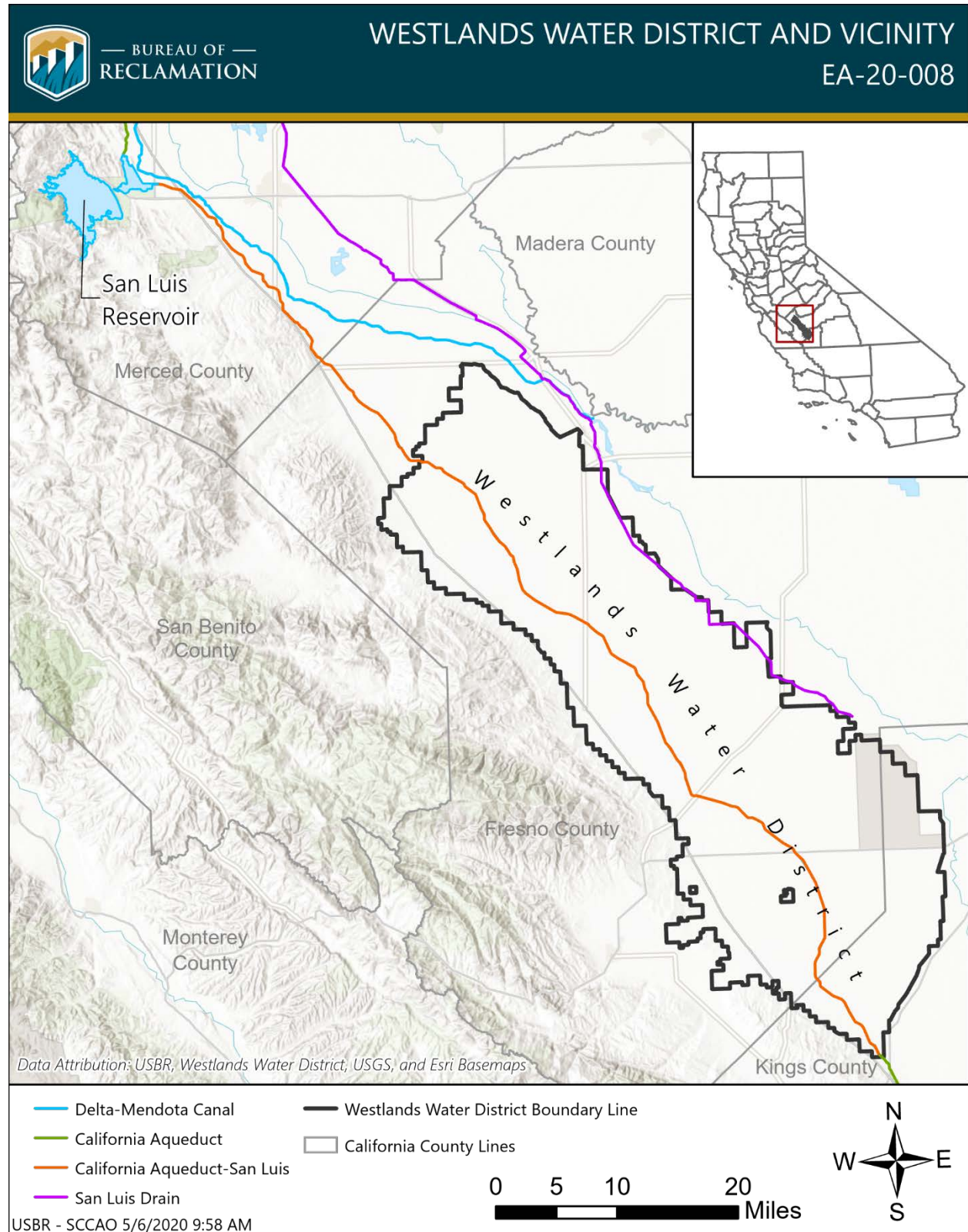


Figure 1. Proposed Action Area

Section 2 Alternatives Including the Proposed Action

This EA considers two possible actions: the No Action Alternative and the Proposed Action. The No Action Alternative reflects future conditions without the Proposed Action and serves as a basis of comparison for determining potential effects to the human environment.

2.1. No Action Alternative

Under the No Action Alternative, Reclamation would not issue a Warren Act contract to Westlands for the introduction, conveyance, and storage of their non-CVP water into federal facilities. As Westlands has an active groundwater pumping program, groundwater would still be pumped out of the aquifer as it has in the past. However, distribution of the non-CVP water would be limited to only those areas that could normally receive the water and would not enable Westlands to provide water supplies to other areas in-district.

Additional constraints under California's Sustainable Groundwater Management Act (SGMA) and the Westside Subbasin Groundwater Sustainability Plan (GSP) that applies to Westlands may limit the amount of groundwater pumping available, reducing Westlands' ability to ensure that water supplies are made available when they are most needed. For dry years with low CVP water allocations, if no other source or conveyance/storage mechanism were found, fallowing of cropland could be necessary, or permanent crops could possibly be lost.

2.2. Proposed Action

Reclamation proposes to enter into a 5-year Warren Act contract with Westlands. Under the terms of the contract, Westlands would introduce up to 30,000 AF per year of non-CVP water into the San Luis Canal in years in which Westlands' CVP allocation is 20 percent or less under the conditions outlined in Section 2.2.2 of this EA and in Appendix A. The period of introduction would be between April 1 and August 31 of a given year. However, as it was not possible to begin conveyance by April 1, 2020, the conveyance period for this year would be shifted by four months, to between August 1 and December 31. All subsequent years would use the April 1 to August 31 window.

2.2.1. Source of Non-CVP Water

The source of the non-CVP water would be pumped groundwater from groundwater wells within Westlands' district boundaries as well as other sources of non-CVP water by way of the Mendota Pool Inlet Canal. Potential groundwater sources and proposed discharge locations are listed in Table 1, and shown graphically in Appendix A. The amount of water from each source would vary, but the total quantity introduced under the Proposed Action would not exceed a combined volume of 30,000 AF in a given year.

Non-CVP water introduced into the San Luis Canal would either be directly delivered to agricultural users located downstream of the points of introduction or operationally exchanged

with Reclamation for a like amount, less conveyance losses, of Westlands' available water supplies in San Luis Reservoir. Exchanged water would either be delivered to agricultural users located upstream of the points of introduction in Westlands or stored in San Luis Reservoir as non-CVP water for later delivery to Westlands via the San Luis Canal.

Introduction of Westlands' non-CVP water and storage of the exchanged water would be scheduled annually with Reclamation and would be subject to excess capacity, operational constraints, and environmental requirements, as applicable. No Project Use Power would be used for the Proposed Action.

It is Westlands' intention to use the water in the same year in which it is introduced to federal facilities. However, if Westlands is unable to make use of water introduced into the facilities within the designated window, it may be necessary to carry the water over for later use, in accordance with Reclamation's applicable rescheduling guidelines.

No construction of new facilities or modifications to the San Luis Canal would be authorized under the Proposed Action. Reclamation proposes to issue a combined 25-year authorization for all discharge points (Table 1) involved in the Proposed Action.

Table 1. Proposed Discharge Locations

#	San Luis Canal Milepost	Facility Type	State Well ID(s)
1	105.00L	Direct Discharge	141202R01
2	105.20L	Direct Discharge	141202R02
3	107.10R	Direct Discharge	141225D01
4	107.63R	Direct Discharge	141319R01
5	108.85L	Direct Discharge	141316N05
6	110.49L	Direct Discharge	141322P01
7	110.52L	Direct Discharge	141323EO2
8	111.02R	Direct Discharge	141327E01
9	111.91R	Direct Discharge	151305D02
10	113.77	Direct Discharge	141628P01
11	114.00R	Direct Discharge	151316L01
12	114.95L	Direct Discharge	151407E01
13	115.43L	Lateral 7	151509R03 151509R04 151509R05 151503A02 151504A03 151503H01
14	116.91R	Direct Discharge	151322M01
15	117.52L	Direct Discharge	151419F01 151419Q01
16	118.46R	Direct Discharge	151431D02
17	119.56R	Direct Discharge	151431D02
18	120.80L	Direct Discharge	161404D01
19	122.59RA	Direct Discharge	161427P01
20	123.05L	Direct Discharge	161403H01
21	123.89R	Direct Discharge	161424E01
22	124.18L	Direct Discharge	161412N02
23	125.33R	Direct Discharge	161506P02

#	San Luis Canal Milepost	Facility Type	State Well ID(s)
24	125.99L	Direct Discharge	161518P04
25	126.65L	Lateral 12L	161520H01
26	127.40L	Direct Discharge	161521L01 161521N03
27	128.49R	Direct Discharge	171413A01
28	128.50L	Direct Discharge	161533J01
29	128.54L	Direct Discharge	161532A06
30	130.81R	Direct Discharge	171510M01
31	132.77L	Direct Discharge	171513A01
32	133.80L	Direct Discharge	171601N03
33	133.81L	Direct Discharge	171623J01 171623M01 181606F01 171614Q01
34	135.48RA	Direct Discharge	171526A01
35	135.96R	Lateral 14	171526L01
36	136.03L	Direct Discharge	171614Q01 171623J01 171623M01
37	137.00R	Lateral 15	171536Q02
38	137.31L	Direct Discharge	181606F01
39	137.83L	Direct Discharge	171623J01 171623M01 171614Q01 171601N03
40	138.24L	Direct Discharge	181605N01
41	139.40L	Direct Discharge	181609R01
42	140.55LA	Direct Discharge	181617R02
43	141.02R	Direct Discharge	181620F01
44	141.07R*	Direct Discharge	181620M01
45	141.55L	Direct Discharge	181621Q02
46	142.58R	Direct Discharge	181629N02
47	143.00L	Direct Discharge	181627N01
48	143.20L	Direct Discharge	191610E01
49	143.21R*	Direct Discharge	191615N01
50	146.35L	Direct Discharge	181720N02
51	147.75RC	Direct Discharge	191720B01
52	152.75L	Direct Discharge	191723R01
53	153.10R	Direct Discharge	191726H01
54	154.10L	Direct Discharge	191836N01
55	155.15L	Direct Discharge	191831N01
56	155.63L*	Direct Discharge	201806F01
57	156.36R	Direct Discharge	201714K01 201712H01
58	156.37LA	Direct Discharge	201806Q01
59	156.40L	Lateral 31	201808M01
60	157.98L	Direct Discharge	201817G01
61	158.47R	Lateral 32	201714R01
62	158.95L	Direct Discharge	201820E01
63	159.90L*	Direct Discharge	201829M01

#	San Luis Canal Milepost	Facility Type	State Well ID(s)
64	159.98R	Direct Discharge	201830G02 201831C01
65	160.50RA	Direct Discharge	201734D01
66	160.68L	Direct Discharge	201832E01
67	161.49L*	Direct Discharge	201831Q01
68	161.60L	Direct Discharge	211805C01 211809D02
69	162.08L	Direct Discharge	211805C01 211805M01
70	162.10R	Direct Discharge	211806G01
71	162.64L	Direct Discharge	211808B01 211809L01
72	163.18R	Direct Discharge	211807E01
73	163.59L	Direct Discharge	211805M01 211808Q01
74	164.00R	Lateral 27R	211818G01
75	164.11R	Direct Discharge	211818G03
76	164.55L-A	Direct Discharge	211817N03 211816P01 211816N01 211822E01 211823E01 211823D06
77	164.55L-B	Direct Discharge	211816P01 211816N01 211822E01
78	164.63R	Direct Discharge	211818G03
79	164.95R	Direct Discharge	211833G01 211833N02 211829E01
80	166.70R*	Direct Discharge	211828G06
81	166.90R	Direct Discharge	211827K02
82	167.04L	Lateral 37	211823D06 211919C03
83	167.84R	Direct Discharge	221804H01
84	167.86R	Direct Discharge	211833N02 211833G01
85	169.21R	Direct Discharge	221803B01
86	169.48L	Direct Discharge	211835Q01 211835N02
87	169.88L	Direct Discharge	221801E01
88	171.50LA	Direct Discharge	221812R01

* **These marked facilities are proposed to be added to the list of authorized facilities that was provided in EA-15-001.**
Note: Some wells are capable of discharging at multiple locations along the canal.

After the end of the 5-year period, the discharge locations would not be able to introduce non-CVP water into the San Luis Canal without a new Warren Act contract, which would require additional environmental review and approval from Reclamation. Additional wells and temporary, aboveground discharge facilities may be added to the program at a later date with associated environmental review by Reclamation.

2.2.2. Proposed Design Constraints and Operating Criteria

The Proposed Action is subject to water quality monitoring, groundwater monitoring, and reporting requirements as described in Reclamation's then-current water quality standards for conveyance of non-CVP water in the San Luis Canal (see Appendix A for those standards that were updated concurrently with the development of this EA).

All participating wells must have baseline sampling each year before pumping into the San Luis Canal begins for those constituents of concern used for screening-out non-compliant wells. Each well is also required to be tested every three years for the full array of Title 22 constituents of

concern. Reclamation will allow the introduction of water from two or more wells through one discharge point if the blended water meets the Title 22 standards. Special monitoring may be required for these situations. There will be a one-time screening for the presence of perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS) and, if detected, Reclamation and the California Department of Water Resources (DWR) will work with Westlands on conducting additional sampling.

Non-CVP water will only enter Lateral 7 when water is being pumped into the San Luis Canal, not when flow is entering the Mendota Pool. Westlands must take weekly field measures for conductivity and turbidity at locations near Lateral 7 during these periods (see Appendix A).

All participating wells must have static maximum depth to groundwater (Max DTGW¹) and Fall/Winter Median groundwater level² data established in order to participate in the Proposed Action. Any well which is missing this data will be excluded from discharging into the San Luis Canal until a groundwater level measurement can be recorded and a Fall/Winter Median groundwater level can be developed. New wells may use Fall/Winter Median and Max DTGW levels of nearby wells, upon Reclamation approval, until unique level measurements are established. This information will be used to ensure pumping does not exceed the maximum amount of groundwater pumping previously experienced in this area by incorporating the following shutoff criteria:

$$\textbf{Shutoff Trigger} = 0.75 \times (\text{Max DTGW} - \text{Fall/Winter Median}) + \text{Fall/Winter Median}$$

If an individual well is shutoff due to groundwater levels reaching the shutoff trigger (75% of Max DTGW), it will not be allowed to resume pumping until it reaches 70% of the difference between the Fall/Winter Median Groundwater Level and the Max DTGW using the following equation:

$$\textbf{Well Resumption} = 0.70 \times (\text{Max DTGW} - \text{Fall/Winter Median}) + \text{Fall/Winter Median}$$

Groundwater level measurements will follow a strict schedule. If a well is shutoff it will not be measured again until the next scheduled measurement date. Westlands must notify Reclamation in writing when a well is shutoff or resuming.

¹ Max Depth to Groundwater (Max DTGW) represents the maximum depth to groundwater measurement collected from an individual well

² Fall/Winter Median Groundwater Levels represent the average historical recovery level for each well. Determined by using groundwater level data recorded in the Fall/Winter after the well has had time to recover from irrigation season.

2.2.3. Environmental Commitments

Westlands shall implement the environmental protection measures included in Table 2.

Table 2. Environmental Protection Measures and Commitments.

Resource	Protection Measure
Various Resources	There will be no ground disturbance, new construction or other new installation without further environmental review and approval.
Various Resources	In areas known to be impaired by historic drainage, all groundwater pumped shall come only from wells screened below the Corcoran Clay layer.
Various Resources	Drainage water may not be introduced into the San Luis Canal under the Proposed Action.
Various Resources	The water introduced under the Proposed Action shall be used for beneficial purposes and in accordance with Federal Reclamation law and guidelines, as applicable. Use of the water shall comply with all federal, state, local, and tribal laws.
Groundwater Resources	Westlands shall comply with all applicable ordinances regarding export of groundwater.
Groundwater Resources	Water quality sampling shall include measurements of groundwater levels. Groundwater levels shall be reported to Reclamation.
Land Use/Biological Resources	The water shall not be used native lands or lands untilled for three consecutive years or more without additional environmental analysis and approval. No land conversions may occur as a result of the Proposed Action.
Water Quality	Prior to introduction, all wells shall be tested to demonstrate compliance with then-current water quality standards for conveyance of non-CVP water in the San Luis Canal.
Water Resources	Westlands will coordinate with DWR and the State Water Project's Facilitation Group during the introduction of the non-CVP water into the San Luis Canal.
Water Quality	Reclamation requires monitoring of selenium levels in the San Luis Canal and at all discharge points as described in the water quality monitoring plan (see Appendix A). Selenium levels in the San Luis Canal shall not exceed 2 parts per billion (ppb) during periods of introduction. If water quality in the San Luis Canal exceeds 2 ppb, Reclamation and/or its operating entity will require additional sampling at all discharge points to ensure that water being introduced does not exceed 2 ppb selenium.

Environmental consequences for resource areas assume the measures specified would be fully implemented. Copies of all reports shall be submitted to Reclamation.

Section 3 Affected Environment and Environmental Consequences

This section identifies the potentially affected environment and the environmental consequences involved with the Proposed Action and the No Action Alternative, in addition to environmental trends and conditions that currently exist.

3.1. Resources Eliminated from Further Analysis

Reclamation analyzed the affected environment and determined that the Proposed Action did not have the potential to cause direct, indirect, or cumulative adverse effects to the resources listed in Table 3.

Table 3. Resources Eliminated from Further Analysis

Resource	Reason Eliminated
Air Quality	The pumps to be used for the Proposed Action are already existing and in place. They would be operated with or without the Proposed Action, and do not represent a new source of air emissions. The groundwater supplies being pumped are able to be utilized either locally without introduction into federal facilities, or can be conveyed to the San Luis Canal for other distribution in-district.
Cultural Resources	There would be no impacts to cultural resources as a result of implementing the Proposed Action as the Proposed Action would facilitate the flow of water through existing facilities to existing users. No new construction or ground disturbing activities would occur as part of the Proposed Action. Reclamation has determined that these activities have no potential to cause effects to historic properties pursuant to 36 CFR Part 800.3(a)(1).
Global Climate Change	In EA-15-001, Reclamation determined that there would be no impacts to climate change due to the groundwater pumping, as the pumps to be used were already existing and in place and would be operated with or without the proposed Warren Act Contract. Similarly, the Proposed Action does not include construction of new facilities or modification to existing facilities. While pumping would be necessary to extract and convey the non-CVP water, no additional electrical production beyond baseline conditions would occur. As such, there would be no additional impacts to global climate change. Global climate change is expected to have some effect on the snowpack of the Sierra Nevada and the runoff regime. It is anticipated that climate change would result in more short-duration high-rainfall events and less snowpack runoff in the winter and early spring months by 2030 compared to recent historical conditions (Reclamation 2016, pg 16-26). However, the effects of this are long-term and are not expected to impact CVP operations within the five-year window of the Proposed Action. Further, CVP water allocations are made dependent on hydrologic conditions and environmental requirements. Since Reclamation operations and allocations are flexible, any changes in hydrologic conditions due to global climate change would be addressed within Reclamation's operation flexibility. In addition, pumping would be further curtailed under the Proposed Action based on the design constraints and operating criteria included in 2.2.2 and, as such, there would be even less emissions under the Proposed Action than those previously covered and Reclamation's determination is unchanged.
Indian Sacred Sites	The Proposed Action would not limit access to and ceremonial use of Indian Sacred Sites on Federal lands by Indian religious practitioners or affect the physical integrity of such sacred sites. There would be no impacts to Indian sacred sites as a result of the Proposed Action.
Indian Trust Assets	The Proposed Action would not impact Indian Trust Assets as there are none in the Proposed Action area.

3.2. Biological Resources

3.2.1. Affected Environment

A species list was obtained from the U.S. Fish and Wildlife Service (USFWS 2020) on April 3, 2020 at <https://ecos.fws.gov/ipac/>. Reclamation utilized that list, records from the California Natural Diversity Database (CNDDDB 2020) and other information on file to compile Table 4 below.

The Proposed Action Area consists of San Luis Reservoir, the San Luis Canal, Mendota Pool, and lands within Westlands, and refuges and wildlife areas that can receive water from the San Luis Canal and Mendota Pool. The only federally listed species that may occur in the area are the Buena Vista Lake shrew, San Joaquin kit fox, blunt-nosed leopard lizard, giant garter snake, California least tern, and San Joaquin woolly-threads. The only one of these species that can use agricultural lands at all is the San Joaquin kit fox, which can forage (but not den) in crop fields where the fields lie close to native lands (Warrick et al. 2007). The majority of the Proposed Action Area consists of agricultural lands.

The Mendota Wildlife Area receives water from Lateral 7, and the giant garter snake occurs at that location, as well as a number of migratory bird species. Kern National Wildlife Refuge receives water from the California Aqueduct, via approximately 12 miles of Buena Vista Water Storage District facilities. The Buena Vista Lake shrew is found at Kern National Wildlife Refuge, which also supports a number of migratory birds.

Table 4 Federally Listed Threatened and Endangered Species

Species	Status ¹	Effects
AMPHIBIANS		
California red-legged frog (<i>Rana draytonii</i>)	T, X	No effect determination; The species and its critical habitat occur just to the west of San Luis Reservoir, but not in the reservoir itself. Proposed Action area is outside species' current range.
California tiger salamander, central population (<i>Ambystoma californiense</i>)	T, X	No effect determination; native lands and lands fallowed and untilled for three or more years would not be brought into production as part of the Proposed Action.
BIRDS		
California Condor (<i>Gymnogyps californianus</i>)	E, X	No effect determination; native lands and lands fallowed and untilled for three or more years would not be brought into production as part of the Proposed Action.
California Least Tern (<i>Sternula antillarum browni</i>)	E	No effect. Least terns were observed at sewage ponds at Lemoore Naval Air Station in the past, but monitoring along the San Luis Drain conducted by Reclamation a few years ago (for multiple years) failed to yield any observations. Even so, the Proposed Action would not contribute to any drainage that could contaminate potential foraging habitat, such as the San Luis Drain.
Western Snowy Plover (<i>Charadrius alexandrinus nivosus</i>)	T, X	No effect determination; not known to occur in the Proposed Action Area, which is outside of the typical range. Not expected due to lack of evaporation ponds.

Western Yellow-billed Cuckoo (<i>Coccyzus americanus occidentalis</i>)	T, PX	No effect determination; his species could fly over during migration but nesting habitat (extensive cottonwood-willow stands) is absent.
FISH		
Central Valley steelhead (<i>Oncorhynchus mykiss</i>)	T, X	Effects of pumping in the San Joaquin-Sacramento Delta have been/are being addressed separately.
Central Valley spring-run chinook salmon (<i>Oncorhynchus tshawytscha</i>)	T, X	Effects of pumping in the San Joaquin-Sacramento Delta have been/are being addressed separately.
delta smelt (<i>Hypomesus transpacificus</i>)	T, X	Effects of pumping in the San Joaquin-Sacramento Delta have been/are being addressed separately.
North American green sturgeon (<i>Acipenser medirostris</i>)	T, X	Effects of pumping in the San Joaquin-Sacramento Delta have been/are being addressed separately.
Sacramento River winter-run chinook salmon (<i>Oncorhynchus tshawytscha</i>)	E, X	Effects of pumping in the San Joaquin-Sacramento Delta have been/are being addressed separately.
INVERTEBRATES		
Conservancy fairy shrimp (<i>Branchinecta conservatio</i>)	E, X	No effect determination; native lands and lands fallowed and untilled for three or more years would not be brought into production as part of the Proposed Action.
Valley elderberry longhorn beetle (<i>Desmocerus californicus dimorphus</i>)	T, X	No effect determination; although suitable habitat (elderberry shrubs with stems one inch or larger in diameter at ground level) may be present in Fresno County (Kings, Kern, and Tulare Counties are outside the species' range), no land use change, conversion of habitat, construction or modification of existing facilities would occur as a result of the Proposed Action.
Vernal pool fairy shrimp (<i>Branchinecta lynchi</i>)	T, X	No effect determination; native lands and lands fallowed and untilled for three or more years would not be brought into production as part of the Proposed Action.
Vernal pool tadpole shrimp (<i>Lepidurus packardii</i>)	E, X	No effect determination; native lands and lands fallowed and untilled for three or more years would not be brought into production as part of the Proposed Action.
MAMMALS		
Buena Vista Lake shrew (<i>Sorex ornatus relictus</i>)	E, X	No effect determination; critical habitat occurs near, but outside of Westlands. Known from Kern National Wildlife Refuge, but native lands and lands fallowed and untilled for three or more years would not be brought into production as part of the Proposed Action.
Fresno kangaroo rat (<i>Dipodomys nitratoides exilis</i>)	E, X	No effect determination; Proposed Action area is outside species' range (a population at Lemoore Naval Air Station that was likely a Fresno/Tipton hybrid has been extirpated).
Giant kangaroo rat (<i>Dipodomys ingens</i>)	E	No effect determination; proposed action area is outside the species' current range.
San Joaquin kit fox (<i>Vulpes macrotis mutica</i>)	E	No effect determination. Potentially present within the action area; there are a number of CNDDB records. Native lands and lands fallowed and untilled for three or more years would not be brought into production as part of the Proposed Action.
Tipton kangaroo rat (<i>Dipodomys nitratoides nitratoides</i>)	E	No effect determination; A population at Lemoore Naval Air Station that was likely a Fresno/Tipton hybrid has been extirpated) and the species is known from the Kern National Wildlife Refuge.

		Native lands and lands fallowed and untilled for three or more years would not be brought into production as part of the Proposed Action.
PLANTS		
California jewelflower (<i>Caulanthus californicus</i>)	E	No effect determination; suitable habitat no longer present.
Kern mallow (<i>Eremalche kernensis</i>)	E	No effect determination. Known from the Kern Wildlife Refuge. Native lands and lands fallowed and untilled for three or more years would not be brought into production as part of the Proposed Action.
palmate-bracted bird's-beak (<i>Cordylanthus palmatus</i>)	E	No effect determination; suitable habitat no longer present.
San Joaquin woolly-threads (<i>Monolopia congdonii</i>)	E	No effect determination. Potentially present within the western edge of Westlands. Native lands and lands fallowed and untilled for three or more years would not be brought into production as part of the Proposed Action.
REPTILES		
Blunt-nosed leopard lizard (<i>Gambelia sila</i>)	E	No effect determination; may occur on the western edge of Westlands, and known from Kern National Wildlife Refuge, but native lands and lands fallowed and untilled for three or more years would not be brought into production as part of the Proposed Action.
Giant garter snake (<i>Thamnophis gigas</i>)	T	No effect determination; occurs at Mendota Wildlife Area, which receives water from Lateral 7, but selenium would not rise above 2 ppb in Lateral 7.
Green sea turtle, East Pacific DPS (<i>Chelonia mydas</i>)	T	No effect determination; Proposed Action area is outside species' range.

¹ Status= Listing of Federally special status species.

E: Listed as Endangered

T: Listed as Threatened

X: Critical Habitat designated for this species

PX: Critical Habitat proposed for this species.

3.2.2. Environmental Consequences

No Action

Under the No Action Alternative, lands in Westlands would either continue to be farmed with other water supplies or would be fallowed. It is unlikely that this would change the current distribution or abundance of federally listed species in the Proposed Action Area, as the fallowed fields would typically be regularly disced, and so would not revert to a more suitable condition for the few species in the area, such as the San Joaquin kit fox.

Proposed Action

Under the Proposed Action, the water would help keep agricultural lands in production. No native lands or lands fallowed and untilled for three or more years could be brought into production with the use of the water involved in the Proposed Action. Both Mendota Wildlife Area and Kern National Wildlife Refuge water supplies may mix with groundwater introduced as a result of the Proposed Action, and this would occur partly during times of the year when these refuges would receive water supplies. However, the selenium levels are expected to remain well below the threshold for an effect on wildlife, which is 2 ppb as measured in the water

column (Reclamation and San Luis & Delta-Mendota Water Authority 2009 and references therein). In addition to the constraints detailed in 2.2.2 of this EA, water under the Proposed Action would be required to meet Reclamation's then-current water quality standards for conveyance of non-CVP water in the San Luis Canal (see Appendix A). If a well to be used for pumping water into the San Luis Canal does not meet Reclamation's criteria for selenium concentration, no water would be allowed to be introduced from that source until water quality improves sufficient to meet the requirements. With all sources of discharge of non-CVP water being required to have selenium concentrations of 2 ppb, the water introduced under the Proposed Action would have no potential of raising selenium concentration within the San Luis Canal above 2 ppb. Because Westlands would only operate under the Proposed Action in years with 20% allocations or less, no drainage would be generated that could make its way into aquatic habitat potentially used by the giant garter snake or California least tern.

As a result, Reclamation has determined there would be No Effect to proposed or listed species or critical habitat under the Endangered Species Act of 1973, as amended (16 U.S.C. §1531 et seq.), and there would be no take of birds protected under the Migratory Bird Treaty Act (16 U.S.C. §703 et seq.). No consultation with the U.S. Fish and Wildlife Service or National Marine Fisheries Service is required.

Cumulative Impacts

As the Proposed Action would not result in any direct or indirect impacts to biological resources, it would not contribute cumulatively to any impacts.

3.3. Environmental Justice

Executive Order 12898 (February 11, 1994) mandates Federal agencies to identify and address disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations.

3.3.1. Affected Environment

Westlands is located in Fresno and Kings Counties, where conditions have largely remained the same as those described previously in EA-15-001. The demographics of the counties are comparable to California's, except that the proportion of the population who identify as Hispanic or Latino is higher, and the percentage who identify as Asian is lower. In both counties, the proportion of the population identifying as Hispanic or Latino has increased in the time since the previous analysis. See Table 5 below for more information.

Table 5. Demographic Data, Estimates July 1, 2019

	Total Population	White	Black or African American	American Indian	Asian	Native Hawaiian/ Pacific Islander	Hispanic or Latino
Fresno County	999,101	76.7%	5.8%	3.0%	11.0%	0.3%	53.5%
Kings County	152,940	81.0%	7.3%	3.2%	4.5%	0.3%	55.0%
California	39,512,223	72.1%	6.5%	1.6%	15.3%	0.5%	39.3%

Source: U.S. Census Bureau 2019

3.3.2. Environmental Consequences

No Action

Under the No Action Alternative, Reclamation would not allow Westlands to introduce pumped groundwater water into the San Luis Canal. Growers would have to find alternative supplies of water, provide for alternative conveyance paths, and/or temporarily take land out of production. Farm laborers often come from minority and low-income communities. Therefore, reductions in agricultural productivity would have a disproportionate, adverse impact on those communities.

Proposed Action

The Proposed Action would support agriculture by allowing conveyance of groundwater and other sources of non-CVP water to support existing crops. Since farm laborers often come from minority and low-income communities, supporting farm employment is a benefit to those disadvantaged groups.

Cumulative Impacts

The Proposed Action would allow conveyance of water to support agriculture in a time of shortage. Because of agriculture's importance to the area's economy, any impacts, either positive or negative, tend to have a disproportionate and cumulative effect on employment and wages. Farm laborers often come from low-income and minority populations and they are therefore disproportionately affected by these trends. Similar water-moving actions have been authorized or are currently under review, including the Delta-Mendota Canal Groundwater Pump-in Program. Cumulatively these actions are expected to provide a benefit to the economic well-being of disadvantaged groups.

3.4. Water Resources

3.4.1. Affected Environment

The following sections provide updates and address changes that have occurred in the Proposed Action Area since EA-15-001.

Westlands Water District

Surface Water Surface water resources in the Proposed Action Area have generally remained the same within Westlands since the previous EA-15-001.

Reclamation makes CVP water available to contractors for reasonable and beneficial uses, but CVP water supply varies widely from year to year and sometimes even within a given year due to hydrologic conditions and/or regulatory constraints and is often insufficient to meet all of the irrigation water service contractors' water needs. As shown in Table 6 below, the South-of-Delta CVP agricultural allocations ranged from 0 percent and 100 percent of contract amounts and averaged 45 percent of contract amounts between 2005 and 2019. The allocation for South-of-Delta CVP agricultural supplies as of June 23, 2020 is 20 percent, due to a low supply of water. For 9 out of the last 15 years, the South-of-Delta CVP agricultural allocation was less than 50 percent due to drought conditions and regulatory requirements. Consequently, CVP contractors, including Westlands, adaptively manage water supplies based on current and projected hydrologic conditions (as well as regulatory and environmental requirements) in order to

proactively assess their risks in making business, economic, cropping, planting, and irrigation decisions.

Table 6. South-of-Delta CVP Contract Allocations between 2005 and 2020

Contract Year	Agricultural Allocations (%)	M&I Allocations (%)¹
2020 ²	20	70
2019	75	100
2018	50	75
2017	100	100
2016	5	55
2015	0	25
2014	0	50
2013	20	70
2012	40	75
2011	80	100
2010	45	75
2009	10	60
2008	40	75
2007	50	75
2006	100	100
2005	85	100
Average	45	75

¹ M&I water service allocations are based as a percentage of their historic use or public health and safety needs.

² Allocations as of June 23, 2020.

Groundwater Resources Westlands is located within the Westside groundwater subbasin (5-022.09) identified by DWR as critically overdrafted with significant, on-going and irreversible subsidence (DWR 2017, pg 13 and 15, Reclamation 2016, pg 7-12). The Westside Subbasin GSP is the approved plan for the Westlands Water District Groundwater Sustainability Agency, which includes Westlands' entire district boundaries. This GSP, completed in January 2020, provides projected maximum yields for groundwater pumping within the Westside Subbasin that would maintain various sustainability indicators as defined by SGMA.

In order to achieve the sustainability goals provided in the Westside Subbasin GSP, Westlands has planned to implement various measures, including groundwater pumping allocation management actions, additional aquifer storage and recovery operations, pumping reductions, and additional surface water imports. Within the GSP, the amount and reliability of available imported surface water was evaluated to accurately quantify the projected water budget within the Westside Subbasin. The primary source of imported water will continue to be CVP water supplies.

Groundwater pumping is greatly increased in years with reduced CVP water supply allocations, which can be reduced by drought conditions as well as various state and federal regulatory requirements. Since 2000, Westlands' CVP water supply has been significantly reduced and groundwater pumping has steadily increased. Groundwater has been the primary source of water supply within Westlands since 2007. Westlands also monitors grower/landowner well pumping and submits groundwater pumping data to the California Statewide Groundwater Elevation Monitoring Program (Westlands 2017). In 2015, approximately 660,000 AF of groundwater was

pumped by private landowners to meet in-district demands. As shown in Figure 2 (source: Westlands 2019), CVP supplies have never been sufficient to meet demands within Westlands.

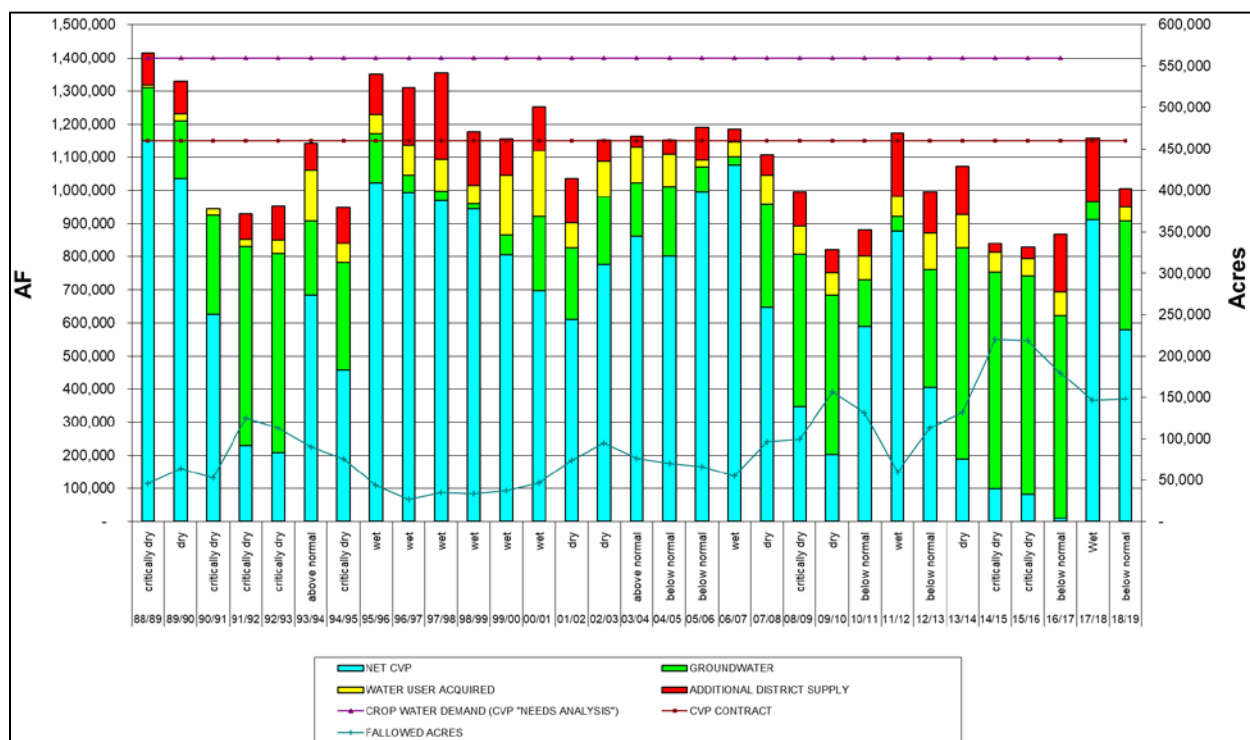


Figure 2. Westlands Available Water Supplies 1988 through 2019

Westlands has implemented a groundwater management program to reduce the potential for future extreme subsidence and has operated its water resource activities under the concept of conjunctive use. Based on the conjunctive use concept, water users are expected to continue mixed use of CVP, other surface water supplies, and groundwater, with greater emphasis on groundwater use during dry periods when surface water is limited or expensive, and use surface water during wetter periods in lieu of groundwater in order to allow recharge of the groundwater basin. Under the Westside Subbasin GSP, Westlands plans to avoid undesirable results such as groundwater level declines, irreversible subsidence, and degraded water quality, among others, by maintaining the projected maximum sustainable yield which averages between 304,000 AF annually over the GSP's 50-year horizon (Westlands 2020).

Subsidence A 2017 National Aeronautical and Space Administration (NASA) report prepared for DWR (Farr et al. 2017) documented that the two main subsidence bowls in the San Joaquin Valley (centered on Corcoran and El Nido) previously identified in 2015, had grown wider and deeper between March 2015 and September 2016 and that a third area, near Tranquillity in Fresno County also experienced intensified subsidence. The maximum total subsidence in these areas during that time was: 22 inches near Corcoran, 16 inches southeast of El Nido, and 20 inches in the new area near Tranquillity. All three subsidence bowls are outside of the Proposed Action Area. However, the report found that the section of the San Luis Canal/California Aqueduct located in Westlands near the City of Avenal in Kings County dropped two feet due to subsidence caused by excessive groundwater pumping (Farr et al. 2017) (**Error! Reference source not found.**).

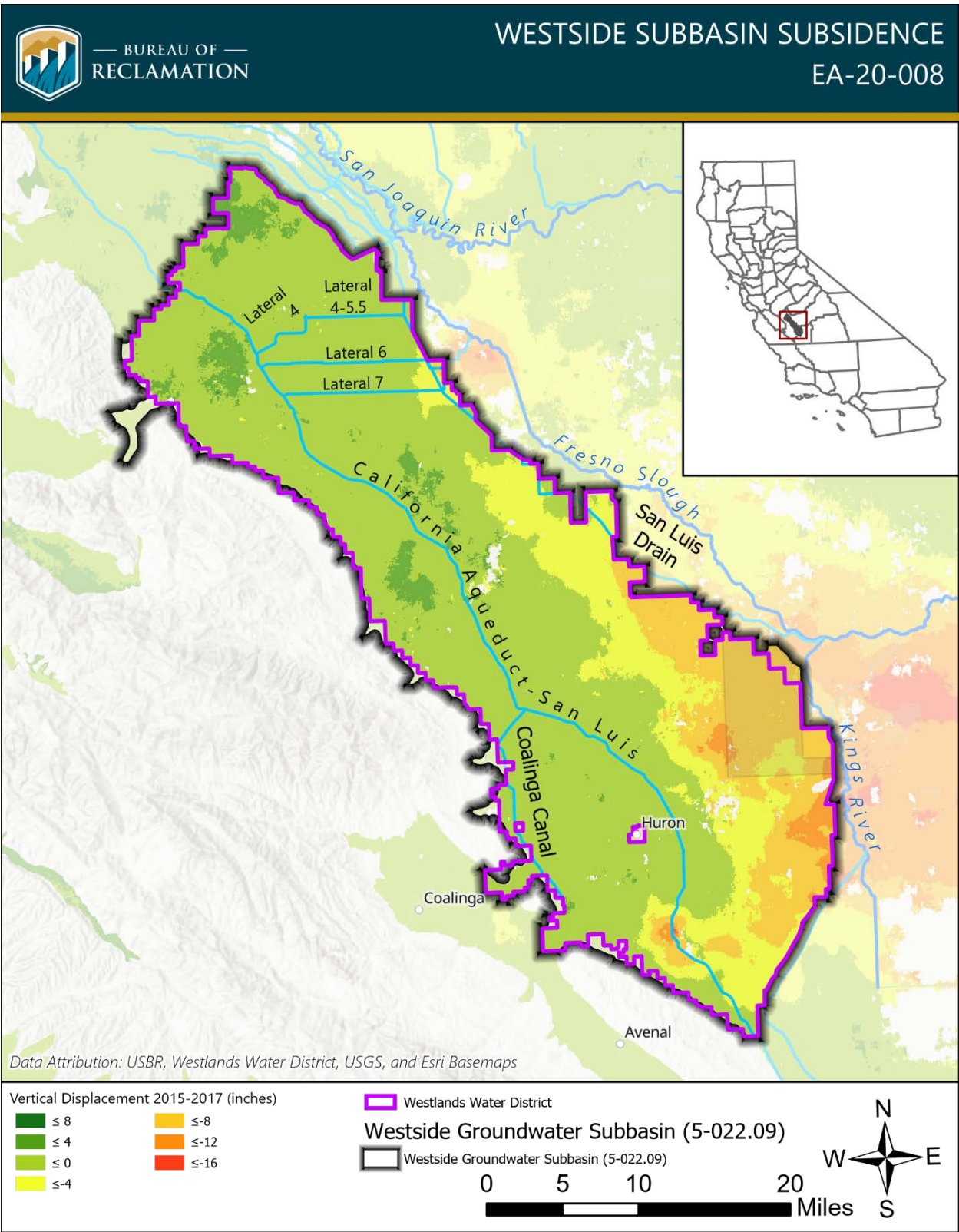


Figure 3. Subsidence in the Westside Subbasin (2015-2017)

3.4.2. Environmental Consequences

No Action

Under the No Action Alternative, Reclamation would not permit introduction of non-CVP water into federal facilities. As Westlands has an active groundwater pumping program, groundwater would still be pumped out of the aquifer as it has in the past. However, distribution of the non-CVP water would be limited to only those areas that could normally receive the water and would not enable Westlands to provide water supplies to other areas in-district.

Proposed Action

Surface Water Similar to the findings of EA-15-001 regarding the previous action, the Proposed Action would allow groundwater and other non-CVP water to be conveyed and/or stored in CVP facilities when excess capacity is available. The Proposed Action would not interfere with the normal operations of the San Luis Canal (as it would be scheduled prior to introduction), nor would it impede any State Water Project (SWP) or CVP obligations to deliver water to other contractors or to fish and wildlife habitat.

As described in the previous EA-15-001, total dissolved solids water quality values reported for water from the wells at that time ranged from 530 to 1,180 mg/L. This is expected to be representative of the groundwater pumped and conveyed under the Proposed Action. In addition to the constraints detailed in 2.2.2 of this EA, water under the Proposed Action would be required to meet Reclamation's then-current water quality standards for conveyance of non-CVP water in the San Luis Canal (see Appendix A). If a well to be used for pumping water into the San Luis Canal does not meet Reclamation's standards, no water would be allowed to be introduced from that source until water quality improves sufficient to meet the requirements. Reclamation also requires that flow in Lateral 7 would be moving toward the San Luis Canal for any water to be pumped into Lateral 7 for the Proposed Action, ensuring that no groundwater pumped under the Proposed Action would end up in the Mendota Pool.

Some groundwater wells included in the Proposed Action are located in areas known to be impacted by historic drainage. However, as described in the Environmental Commitments of the Proposed Action in 2.2.3, these wells are all screened below the Corcoran Clay layer which separates the shallow and deep aquifers. Therefore, the water pumped from these wells would not come from the layers which are drainage-impaired. The groundwater pumped and conveyed under the Proposed Action would also not be used on land known to be drainage-impaired, and therefore would not mobilize contaminants present in those areas.

Groundwater The Proposed Action allow for the pumping of up to 30,000 AF per year of groundwater at various locations within Westlands, for conveyance in federal facilities, during years in which their CVP allocation is 20 percent or less. The water involved in the Proposed Action is within the range of historical pumping during the irrigation season, and would be pumped regardless of whether Reclamation allowed its conveyance in federal facilities. The Proposed Action only allows Westlands' growers to convey the water to the areas of the district with greatest need.

Westlands shall monitor and report groundwater quality to Reclamation pursuant to the then-current water quality standards for conveyance of non-CVP water in the San Luis Canal.

Additionally, under the Proposed Action, Westlands will maintain groundwater levels as described in the constraints detailed in 2.2.2, which would have an overall beneficial impact to groundwater in comparison to the No Action Alternative.

Subsidence Groundwater pumping is known to be a leading cause of subsidence in the San Joaquin Valley. However, the groundwater to be conveyed under the Proposed Action is within the range of historical pumping by Westlands, and would be pumped regardless of whether Reclamation allowed its conveyance in federal facilities. Additionally, Reclamation’s monitoring requirements (Appendix A) are designed to prevent subsidence and the guidelines set forth in the Westside Subbasin GSP apply to Proposed Action. Specifically, shutoff triggers and resumption triggers have been developed to avoid contribution of the participating wells on overdrafting groundwater levels and increasing rates of subsidence in the Action area.

As shown in Figure 4, Max DTGW (also referred to as Critical Head) is the greatest amount of drawdown (lowest depth to water) that has occurred within a particular well.

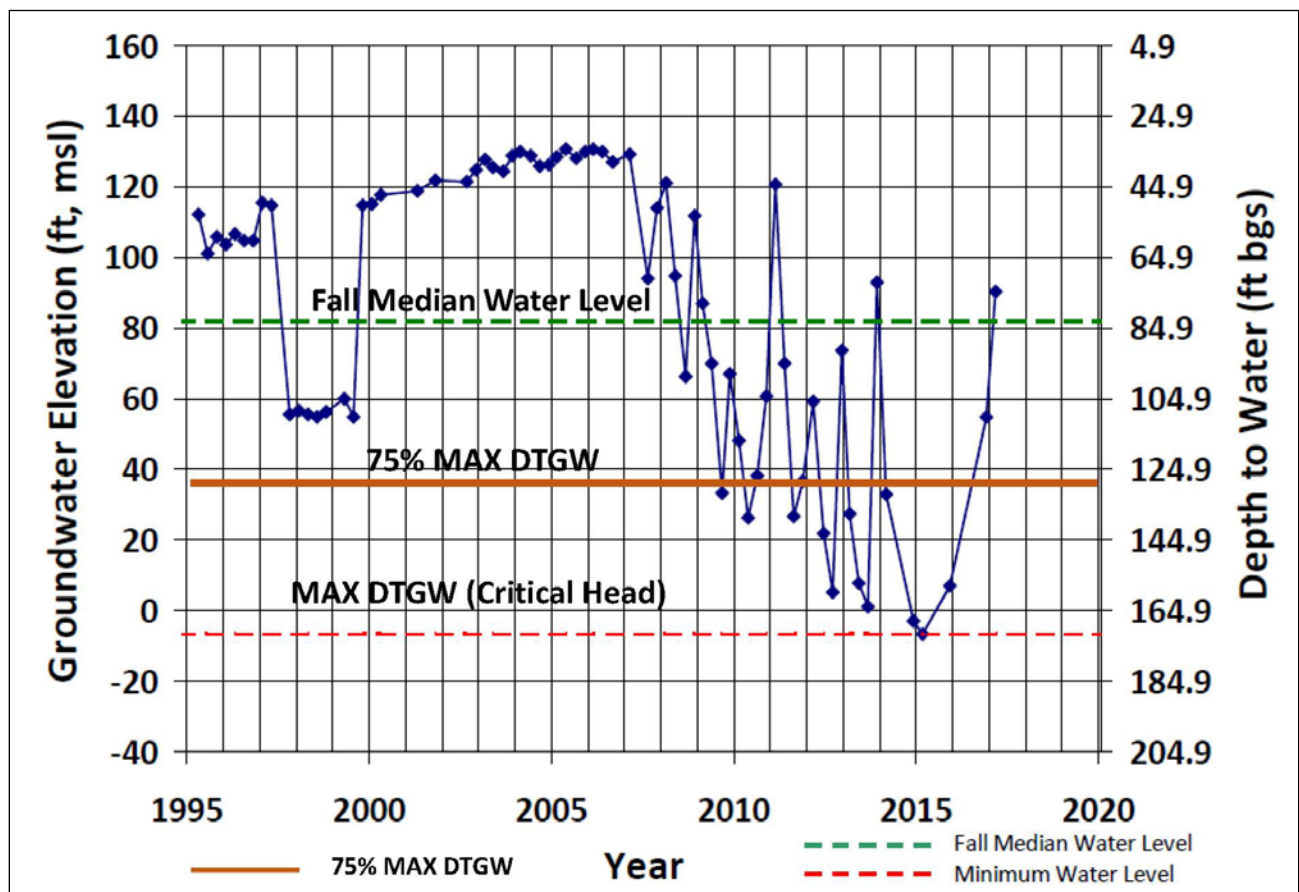


Figure 4. Example of Operation of the Shutoff Trigger

The shutoff trigger included in 2.2.2 requires pumping to stop at 25% above the maximum drawdown experienced by any of the wells participating in the Program, i.e., 75% Max DTGW. This prevents further lowering of water levels beyond what has historically occurred in a given well as illustrated in Figure 4. The resumption trigger also ensures that wells recover prior to

restarting pumping. Therefore, it is highly unlikely any subsidence will occur as result of the use of groundwater from the Proposed Action.

Westlands shall monitor and report groundwater levels to Reclamation pursuant to the then-current water quality standards for conveyance of non-CVP water in the San Luis Canal as well as the constraints detailed in 2.2.2.

Cumulative Impacts

Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. To determine whether cumulatively significant impacts are anticipated from the Proposed Action or the No Action alternative, the incremental effect of both alternatives were examined together with impacts from past, present, and reasonably foreseeable future actions in the same geographic area.

Reclamation has reviewed existing or foreseeable projects in the same geographic area that could affect or could be affected by the Proposed Action, as Reclamation and CVP contractors have been working on various drought-related projects, including this one, in order to manage limited water supplies due to current hydrologic conditions and regulatory requirements. This and similar projects would have a cumulative beneficial effect on water supply during critically dry years.

As in the past, hydrological conditions and other factors are likely to result in fluctuating water supplies which drive requests for water service actions. Water districts provide water to their customers based on available water supplies and timing, while attempting to minimize costs. Farmers irrigate and grow crops based on these conditions and factors, and a myriad of water service actions are approved and executed each year to facilitate water needs. It is likely that over the course of the Proposed Action, districts will request various water service actions, such as transfers, exchanges, and Warren Act contracts (conveyance of non-CVP water in CVP facilities). Each water service transaction involving Reclamation undergoes environmental review prior to approval.

Surface Water The San Luis Canal carries water from CVP, SWP and other sources, for use by contractors located along the San Luis Canal/California Aqueduct. Poor water quality from multiple sources has the potential to cause a cumulative impact on downstream water users. In order to reduce the risk of cumulative impacts to water quality, all water introduced to the San Luis Canal would be tested as required by the then-current water quality standards for conveyance of non-CVP water in the San Luis Canal as well as the constraints detailed in 2.2.2, and if water quality standards cannot be met, introductions from that source would not be allowed until water quality standards are met.

Groundwater Many irrigation districts and individual growers in the San Joaquin Valley rely on groundwater as part of their supply, with volumes pumped varying in response to surface water allocations (CVP and SWP), hydrologic conditions and changes in crop patterns. Pumped water may be used directly on-site, sold/transferred, or exchanged for water at another location.

Groundwater overdraft is an ongoing challenge throughout California, and the San Joaquin Valley in particular has been identified as a high priority, which is recognized in the Westside Subbasin GSP. Overdraft is a cumulative problem, caused by many small actions throughout the basin. However, the Proposed Action only allows conveyance of water that would already be pumped to areas within Westlands with the greatest need. Therefore, there would be no contribution to cumulative impacts to groundwater as a result of the Proposed Action itself.

Subsidence Subsidence in the San Joaquin Valley is a cumulative problem, caused by groundwater pumping at many locations throughout the area. As noted previously, groundwater is likely to be pumped for agricultural use in similar volumes regardless of Reclamation's Proposed Action. However, Reclamation has included operating criteria (design constraints), in order to avoid the contribution of the Proposed Action to these cumulative adverse impacts in the Action area. Therefore, the Proposed Action is not anticipated to contribute to cumulative subsidence impacts beyond ongoing existing trends.

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Section 4 Consultation and Coordination

4.1. Public Review Period

Reclamation intends to provide the public with an opportunity to comment on the Draft EA during a 30-day public review period.

4.2. List of Agencies and Persons Consulted

Reclamation is coordinating with Westlands, DWR, and the San-Luis Delta-Mendota Water Authority regarding the Proposed Action.

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Section 5 References

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Appendix A: San Luis Canal Non-Project Water Pump-in Program 2020 Water Quality Monitoring Plan

RECLAMATION

Managing Water in the West

San Luis Canal Non-Project Water Pump-in Program 2020 Water Quality Monitoring Plan



U.S. Department of the Interior
Bureau of Reclamation
Mid-Pacific Region
South-Central California Area Office

Revised: May 2020

Mission Statements

The mission of the Department of the Interior is to protect and provide access to our Nation's natural and cultural heritage and honor our trust responsibilities to Indian Tribes and our commitments to island communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

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List of Abbreviations and Acronyms

Check 13	San Luis Canal Milepost 66.74, O'Neill Forebay
Check 21	San Luis Canal Milepost 172.44, near Kettleman City
CVP	Central Valley Project
DWR	California Department of Water Resources
EC	Electrical conductivity, $\mu\text{S}/\text{cm}$
Lateral 7	Westlands Water District facility connected to the San Luis Canal at Milepost 115.43L
mg/L	milligrams per liter, equivalent to parts per million
Reclamation	U.S. Department of the Interior, Bureau of Reclamation
San Luis Canal	The federal portion of the California Aqueduct
TDS	Total dissolved solids, mg/L
Title 22	California Drinking Water Standards
$\mu\text{g}/\text{L}$	micrograms per liter, equivalent to parts per billion
$\mu\text{S}/\text{cm}$	microSiemens per cm, salinity in water
Westlands/District	Westlands Water District

Definitions

Non-Project Water means surface or ground water:

- 1) Pumped, diverted, and/or stored based upon the exercise of water rights which have not been appropriated or acquired by, or apportioned to, the United States or others, or which have not been decreed, permitted, certificated, licensed, or otherwise granted to the United States or others, for a Reclamation project, or
- 2) Water not reserved or withdrawn from appropriation by the United States for, nor allocated by the United States to, a Reclamation project.

Excess Capacity means diversion, storage, conveyance, or pumping capacity in project facilities which is excess to that needed to achieve a Reclamation project's authorized purposes.

Max Depth to Groundwater (Max DTGW) represents the maximum depth to groundwater measurement collected from an individual well.

Fall/Winter Median Groundwater Level represents the average historical recovery level for each well. Determined by using groundwater level data recorded in the Fall/Winter after the well has had time to recover from irrigation season. The timeframe for median groundwater levels may vary depending on individual farm usage. Reclamation reserves the right to re-evaluate these data, if needed, as new data becomes available.

Introduction

Under the Warren Act of 1911, Reclamation may execute temporary contracts to convey non-project water in excess capacity in federal irrigation canals.

Reclamation proposes to enter into a 5-year Warren Act contract with Westlands. Under the terms of the contract, Westlands would introduce up to 30,000 acre-feet per year of non-Central Valley Project (CVP) water into the San Luis Canal (SLC) in years in which Westlands' CVP allocation is 20 percent or less. The period of introduction would be between April 1 and August 31 of a given year. However, as it was not possible to begin conveyance by April 1, 2020, the conveyance period for this year would be shifted by three months, to between July 1 and November 30. All subsequent years would use the April 1 to August 31 window.

The source of the non-CVP water would be pumped groundwater from groundwater wells within Westlands' district boundaries as well as other sources of non-CVP water by way of the Mendota Pool Inlet Canal. The amount of water from each source would vary, but the total quantity introduced under the Proposed Action would not exceed a combined volume of 30,000 acre-feet in a given year.

This document describes the plan for measuring the changes in the quality of water in the SLC caused by the conveyance of this non-project water, in addition to changes in groundwater elevation to estimate subsidence.

San Luis Canal Non-Project Water Monitoring Program fundamental assumptions:

- 1) All sources of non-project water discharged into the SLC must comply with California Drinking Water standards (Title 22)¹. No in-canal dilution is allowed.
- 2) Each source of non-project water must be tested regularly to confirm that it is consistent, predictable, and acceptable in quality.
- 3) Staff from DWR will use real-time monitoring of salinity and turbidity in water in the SLC to identify any problems caused by the addition of the non-project water.

This document has been prepared by the U.S. Department of the Interior, Bureau of Reclamation (Reclamation), in cooperation with the California Department of Water Resources (DWR) and the State Water Contractors.

There are two main sources of non-project water:

- 1) Groundwater pumped from wells adjacent to the SLC (Canal Integration Program);
- 2) Groundwater from wells that pump into the Lateral 7 inlet canal.

Monitoring Mission and Goals

The mission of this monitoring program is to produce physical measurements that will determine the changes in the quality of water in SLC caused by the conveyance of non-project water. Data will be used to administer the terms of Warren Act Contracts and other exchange agreements, and to ensure that the quality of CVP water is suitable for downstream water users. The monitoring program will also measure changes to groundwater resources to prevent subsidence problems to local facilities.

The general goals of this monitoring plan are:

- 1) Evaluate the quality of water in each source of non-project water;

¹ California Code of Regulations, Title 22. The Domestic Water Quality and Monitoring Regulations specified by the State of California Health and Safety Code (Sections 4010 4037), and Administrative Code (Sections 64401 et seq.), as amended.
http://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/lawbook/dwregulations-2017-04-10.pdf

- 2) Confirm that non-project water entering the SLC is suitable for all downstream users;
- 3) Provide reliable data for administration of the contracts and agreements; and
- 4) Provide measurements of depth to groundwater to prevent subsidence.

Study Area

The Study Area (**Figure 1**) encompasses the SLC from the O'Neill Forebay (Check 13) to Kettleman City (Check 21), which is the federal portion of the California Aqueduct. **Figure 2** depicts the wells in Westlands along the SLC.

The study area also includes Westlands Lateral 7. For this program, Lateral 7 will be treated as one point of discharge. Water quality in Lateral 7 will be measured at the Adams Avenue pumping plant.

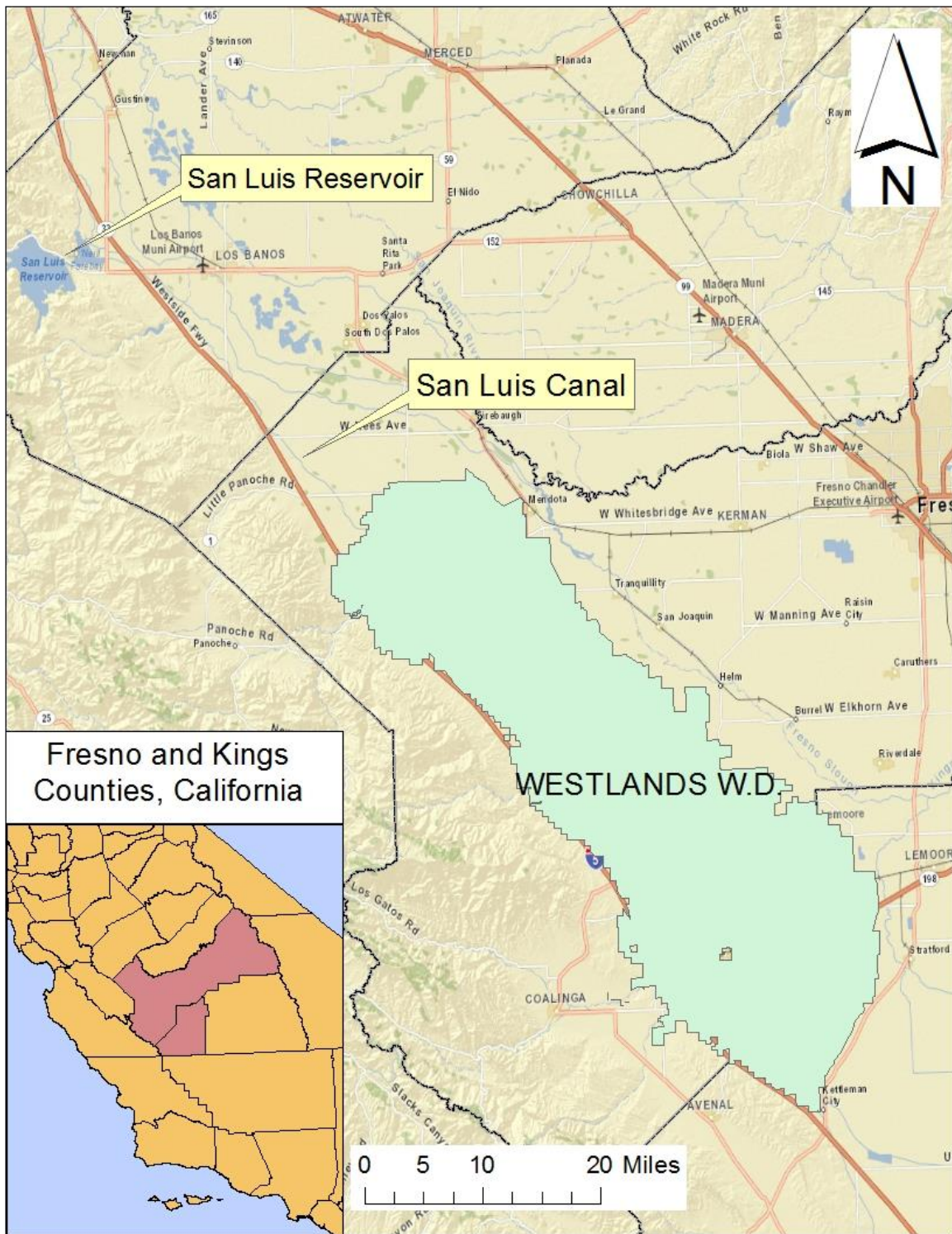


Figure 1. Project vicinity map

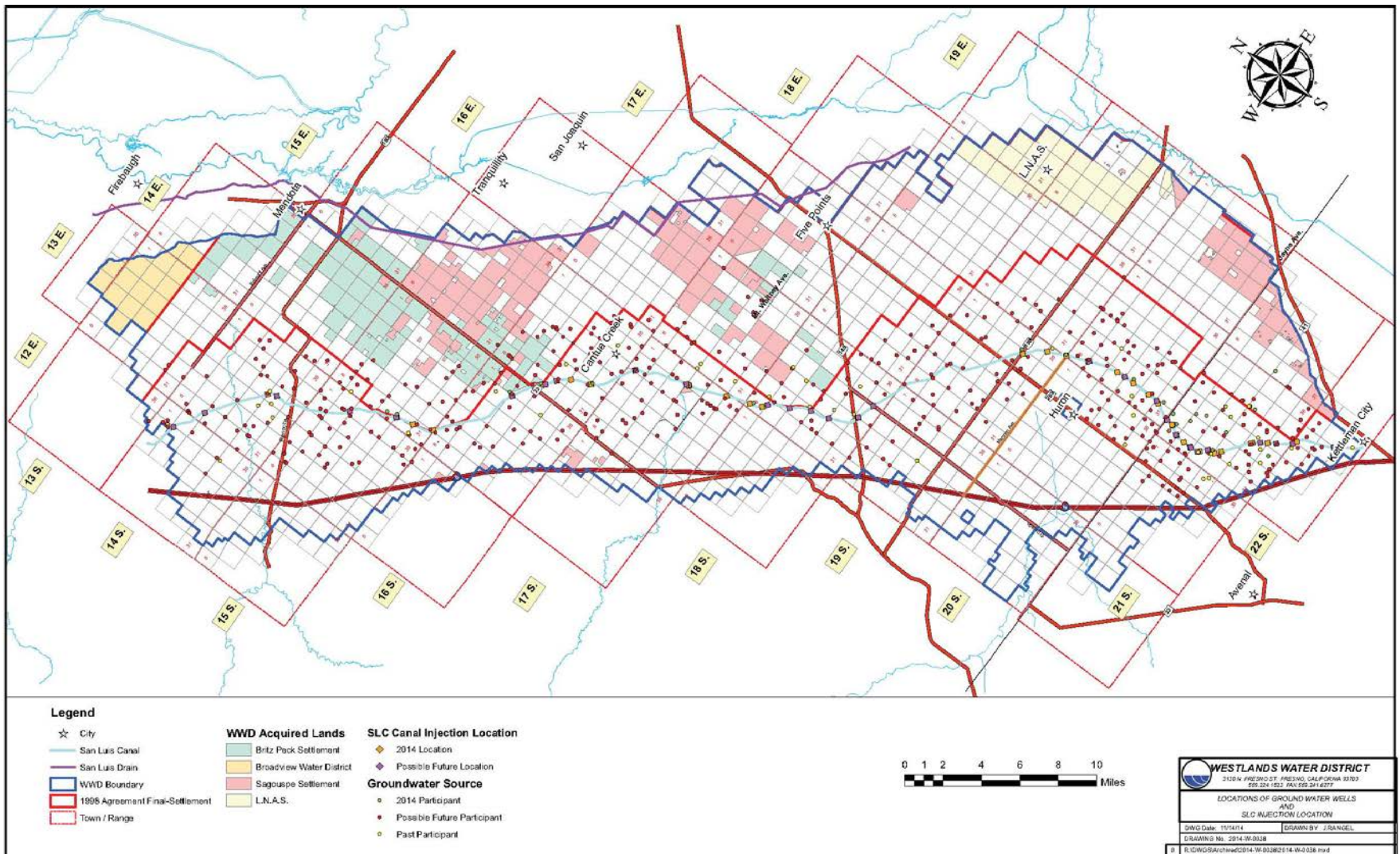


Figure 2. Location of Groundwater Wells within Westlands

Water Quality Monitoring Plan

All non-project water must meet the standards listed in **Tables 5 and 6** prior to entering the SLC. No dilution in the SLC will be allowed. Manifolded wells may discharge if the blend meets the standards listed in **Tables 5 and 6**.

All water quality analyses must be conducted by a laboratory listed in **Table 7**. All water samples must be sampled and preserved according to established protocols in correct containers. The costs of sampling and analysis of all non-project water will be borne by the well operators.

Sampling

Baseline Sampling of Individual Wells

Table 5 is a short list of constituents of concern to be measured in each well each year before pumping into the SLC to screen out non-compliant wells². There will be a one-time screening for the presence of Perfluorooctanoic acid (PFOA) and Perfluorooctanesulfonic acid (PFOS) and if detected, Reclamation and DWR will work with Westlands on conducting additional sampling. Reference **Table 5** for new PFOA and PFOS sampling. Wells that do not meet this short list may not participate in the program.

Each well must be tested every three years for all constituents listed in **Table 6** before pumping in the SLC. Each report must clearly identify the location of each source of non-project water.

Reclamation, in coordination with DWR and the State Water Contractors, may allow minor exceedances of certain secondary Title 22 constituents if all primary standards are met.

All new wells proposed to participate in the program must be approved by Reclamation prior to discharging any groundwater into the SLC or Lateral 7.

Routine Sampling of Individual Wells

Each well must be tested weekly during the first four weeks of pumping for the short list of constituents (**Table 5**), then monthly while actively pumping into the SLC to confirm that the water quality is consistent, predictable, and reliable.

The short list may be modified, in consultation with DWR, to add constituents of concern or drop non-detected constituents.

² Reclamation will provide instructions for sampling groundwater.

Reclamation will allow the introduction of water from two or more wells through one discharge point if the blended water meets the Title 22 standards. Special monitoring may be required for these situations.

The following information must be submitted to Reclamation prior to pumping groundwater into the SLC:

- the location of each well, pumping rate, and point of discharge into the SLC;
- complete Title 22 water quality analyses for each well
- the depth to groundwater in each well before pumping into the SLC commences

When the Project is operating, Westlands will provide DWR and Reclamation with weekly schedules which identify the flow from the active wells.

Westlands will provide weekly updates identifying the current and anticipated water quality changes within the SLC by using the daily model. The goal is to provide Reclamation and the State Water Project Facilitation Group with a day-to-day prediction of downstream water quality using real-time pump-ins, real-time upstream background flows, and current background water quality data.

Lateral 7 Sampling

Non-project water will only enter Lateral 7 when water is being pumped into the SLC, not when flow is entering the Mendota Pool.

In addition to non-project well sampling, Westlands must collect samples from Lateral 7 at the Adams Avenue pump station. Lateral 7 water must be tested for the full suite of Title 22 (**Table 6**) every year. **Table 5** constituents will be sampled weekly for the first four weeks, then monthly for the duration of pumping at the locations listed in **Table 3**. There will be a one-time screening for the presence of Perfluorooctanoic acid (PFOA) and Perfluorooctanesulfonic acid (PFOS) from Lateral 7 at Adams Avenue pump station and if detected, Reclamation and DWR will work with Westlands on conducting additional sampling. Reference **Table 5** for new PFOA and PFOS sampling.

Westlands must take weekly field measures for EC and turbidity at locations listed in **Table 3**.

Depth to Groundwater

Well owners will measure the initial depth to groundwater in each well before pumping into the SLC, and monthly from April through August and every other month outside of that range while the 2020 Pump-in Program is in effect. Measurements must be made using industry approved methods.

An individual well will be shutoff when its Depth to Groundwater reaches 75% of the difference between the Fall/Winter Median Groundwater Level and the Max DTGW using the following equation:

$$\text{Shutoff Trigger} = 0.75 * (\text{Max DTGW} - \text{Fall/Winter Median}) + \text{Fall/Winter Median}$$

If an individual well is shutoff due to groundwater levels reaching the shutoff trigger, it will not be allowed to resume pumping until it reaches 70% of the difference between the Fall/Winter Median Groundwater Level and the Max DTGW using the following equation:

$$\text{Well Resumption} = 0.70 * (\text{Max DTGW} - \text{Fall/Winter Median}) + \text{Fall/Winter Median}$$

Groundwater level measurements will follow a strict schedule. If a well is shutoff it will not be measured again until the next scheduled measurement date. The participants must notify Reclamation in writing when a well is shutoff or resuming. See Definitions section for explanation for Max DTGW and Fall/Winter Median.

Monitoring and Reporting

San Luis Canal Monitoring

Mean daily salinity and turbidity will be measured with the DWR sensors that report real-time data to CDEC (**Table 1**). Westlands will download daily average data for SLC Checks 13 and 21 to measure changes in the canal between these checks that may be attributable to the addition of the non-project water.

Westlands will use a mass balance model to estimate the contribution of salinity to the SLC from the actively pumping wells and Lateral 7 and compare this with the real-time data.

If the addition of the non-project water is increasing the salinity of water in the SLC more than 100 uS/cm between Check 13 and Check 21, Reclamation will work with Westlands and the well operators to turn off high salinity wells.

The addition of non-project water must not raise the salinity in the SLC at Check 21 above 700 uS/cm, equivalent to 450 mg/L Total Dissolved Solids.

If the salinity of water passing Check 13 is greater than 700 uS/cm, Reclamation and Westlands will coordinate with DWR to modify or restrict non-project pumping.

If the addition of the non-project water from Lateral 7 is increasing the turbidity of water in the SLC more than 10 NTU, Reclamation will work with Westlands to reduce discharge from the lateral. Changes in turbidity are measured by collecting samples upstream of and downstream of Lateral 7 (**Table 3**).

Westlands will run model simulations, as needed, to quantify anticipated improvements in conductivity with the termination of pumping from specific wells. The participating wells with the highest salinity will be targeted first, continuing to the wells with the lowest concentrations until canal water quality stabilizes or improves. As salinity at Check 21 improves, wells will be brought on-line to commence pumping.

DWR collects monthly grab samples at Checks 13 (KA007089) and 21 (KA017226) to measure trace metals and other minerals in the canal water. The data will be posted here:

San Luis Canal Check 13:

http://wdl.water.ca.gov/waterdatalibrary/waterquality/station_county/select_station.cfm?URLStation=KA007089&source=map

San Luis Canal Check 21:

http://wdl.water.ca.gov/waterdatalibrary/waterquality/station_county/select_station.cfm?URLStation=KA017226&source=map

DWR and Westlands will review these results to identify water quality changes in the SLC and will determine if they are caused by the addition of the non-project water.

Data Compilation and Review

All flow and water quality data collected by Westlands will be presented each month to Reclamation and DWR via e-mail. Reclamation will review the data to identify changes in the quality of water in the SLC and in individual wells, and potential changes in the local aquifer that could lead to overdraft or subsidence. Reclamation, in consultation with DWR, will direct Westlands on the continuation of pumping of groundwater into the SLC.

Access

Participating well owners must allow Reclamation and DWR staff permission to access the wells, if requested.

DWR Monitoring of Wells

DWR may collect samples for water quality testing for any constituents of concern from any Westlands source well or at any point of water entry into the Aqueduct for testing. DWR will use Bryte Chemical Laboratory or TestAmerica Labs for all DWR well sample analyses and the data will be available to Westlands for review. If any well tested by DWR is found to exceed the identified MCL's, Reclamation will direct Westlands to stop pumping immediately. The discharge must not resume unless it is demonstrated that adjustments have been made to the well or cluster of wells that allows it to discharge water that meets the required objectives.

Westlands will coordinate with well operators to provide access for DWR personnel to conduct any of the following activities on private property within Westlands' service area during the term of this Proposal:

- Verification of metering calibration standards and requirements for flow meters located at the point of entry into the Aqueduct and at the point of delivery out of the Aqueduct,
- Collection of water samples from source wells and at the point of pump-in to the Aqueduct for testing of water quality,
- Any other activities deemed necessary by DWR to comply with the terms of this Proposal.

Revision

Reclamation reserves the right to modify this monitoring program at any time.

Revised: 27 May 2020

Table 1. Real-Time Monitoring Stations

Location	Operating Agency	Parameters	Frequency	Remarks
San Luis Canal Check 13 O'Neill Forebay	DWR	Electrical conductivity, turbidity	Real-time	CDEC Site: C13
San Luis Canal Check 21 Kettleman City				CDEC Site: C21

Key: CDEC: California Data Exchange Center

DWR: California Department of Water Resources

Table 2. Routine San Luis Canal Water Quality Monitoring Stations

Location	Agency	Parameters	Frequency	Remarks
San Luis Canal Check 13 O'Neill Forebay	DWR	Minerals, trace metals, nutrients, pesticides	Monthly	Grab sample
San Luis Canal Check 21 Kettleman City				Grab sample

Source: DWR Water Data Library

Table 3. Routine Monitoring of WWD Lateral 7

Location	Agency	Parameters	Frequency	Remarks
San Luis Canal Milepost 113.82 Lincoln Ave (upstream site)	Westlands	EC, turbidity short list	Weekly Weekly x 4, Monthly ³	Field measurements grab sample
Westlands Lateral 7 at Adams Avenue	Westlands	EC, turbidity short list	Weekly Weekly x 4, Monthly ³	Field measurements grab sample
San Luis Canal Milepost 117.47 Manning Ave (downstream site)	Westlands	EC, turbidity short list	Weekly Weekly x 4, Monthly ³	Field measurements grab sample

³ This water will also be tested for the short list of constituents weekly for the four weeks and monthly for the duration while water is being pumped into the canal.

Table 4. Maximum allowable changes in the San Luis Canal caused by the addition of non-project groundwater

Constituent	Monitoring Location	Maximum concentration in the San Luis Canal
Electrical conductivity	Between San Luis Canal Checks 13 and 21	Less than 100 uS/cm increase between the checks
Turbidity	Between the Lateral 7 upstream site and downstream site	Less than 10 NTU
Electrical conductivity	In the San Luis Canal at Check 21	Not to exceed 700 uS/cm
Total dissolved solids		Not to exceed 450 mg/L
Concentration of selenium		Not to exceed 2 ug/L
Concentration of any Title 22 constituent		Less than half of a Title 22 MCL

If the maximum concentrations are exceeded in the canal, Reclamation will direct the District to reduce or terminate pumping of non-project water into the San Luis Canal. The District may provide a forecast from its water balance model to identify which wells to reduce or terminate, and whether to reduce or terminate pumping from Lateral 7.

San Luis Canal
Non-Project Water Pump-in Program
Water Quality Monitoring Plan

Table 5. Water Quality Standards, Short List

Constituent	Units	Maximum Contaminant Level	Detection Limit for Reporting	CAS Registry Number	Recommended Analytical Method
Arsenic	mg/L	0.01 (1)	0.002 (2)	7440-38-2	EPA 200.8
Boron	mg/L	2.0 (13)		7440-42-8	EPA 200.7
Bromide	mg/L	(14)			
Chloride	mg/L	250 (7)		16887-00-6	EPA 300.1
Chromium, total	mg/L	0.05 (1)	0.01 (2)	7440-47-3	EPA 200.7
Hexavalent chromium	mg/L	0.010 (1)	0.001 (2)	18540-29-9	EPA 200.8
Manganese	mg/L	0.05 (7)		7439-96-5	EPA 200.7
Nitrate (as nitrogen)	mg/L	10 (1)	0.4 (2)	7727-37-9	EPA 300.1
Selenium	mg/L	0.002 (10)	0.001	7782-49-2	EPA 200.8
Sodium	mg/L	69 (12)		7440-23-5	EPA 200.7
Specific Conductance	µS/cm	1,600 (7)			SM 2510B
Sulfate	mg/L	500 (7)		14808-79-8	EPA 300.1
Total Dissolved Solids	mg/L	1,000 (7)			SM 2540C
Total Organic Carbon	mg/L	(14)			EPA 415.3
Gross alpha ⁴	pCi/L	15 (3)	3 (3)		SM 7110C
1,2,3-Trichloropropane	mg/L	0.000005 (4)	0.000005 (5)	96-18-4	SRL 524M

One-Time Screening

Perfluorooctanic acid (PFOA) ⁵	ng/L	N/A	0.82 (15)	EPA 537.1
Perfluorooctanesulfonic acid (PFOS) ⁵	ng/L	N/A	2.7 (15)	EPA 537.1

Short list to be measured before pumping occurs, then weekly for four consecutive weeks, and monthly for the duration of pumping into the San Luis Canal.

(4) Monthly testing only

(5) One-time screening conducted prior to pumping individual wells and from Lateral 7 at the Adams Avenue pump station. Although there are no MCLs developed yet, there are notification levels and response levels. The notification levels are 5.1 PPT (PFOA) and 6.5 PPT (PFOS). The response levels are 10 PPT (PFOA) and 40 PPT (PFOS) based on a running four quarter average. The lowest concentration minimum reporting levels (LCMRL) are 0.82 ng/L (PFOA) and 2.7 ng/L (PFOS).

Revised: 27 May 2020

San Luis Canal
Non-Project Water Pump-in Program
Water Quality Monitoring Plan

Table 6. Title 22 Water Quality Standards

Constituent	Units	Maximum Contaminant Level	Detection Limit for Reporting	CAS Registry Number	Recommended Analytical Method
Primary					
Aluminum	mg/L	1 (1)	0.05 (2)	7429-90-5	EPA 200.7
Antimony	mg/L	0.006 (1)	0.006 (2)	7440-36-0	EPA 200.8
Arsenic	mg/L	0.01 (1)	0.002 (2)	7440-38-2	EPA 200.8
Asbestos	MFL	7 (1)	0.2 MFL>10µm (2)	1332-21-4	EPA 100.2
Barium	mg/L	1 (1)	0.1 (2)	7440-39-3	EPA 200.7
Beryllium	mg/L	0.004 (1)	0.001 (2)	7440-41-7	EPA 200.7
Cadmium	mg/L	0.005 (1)	0.001 (2)	7440-43-9	EPA 200.7
Chromium, total	mg/L	0.05 (1)	0.01 (2)	7440-47-3	EPA 200.7
Copper	mg/L	1.3		7440-50-8	EPA 200.7
Cyanide	mg/L	0.15 (1)	0.1 (2)	57-12-5	EPA 335.2
Fluoride	mg/L	2.0 (1)	0.1 (2)	16984-48-8	EPA 300.1
Hexavalent Chromium	mg/L	0.010 (1)	0.001 (2)	18540-29-9	EPA 218.7
Lead	mg/L	0.015 (9)	0.005 (8)	7439-92-1	EPA 200.8
Mercury	mg/L	0.002 (1)	0.001 (2)	7439-97-6	EPA 245.1
Nickel	mg/L	0.1 (1)	0.01 (2)	7440-02-0	EPA 200.7
Nitrate (as nitrogen)	mg/L	10 (1)	0.4 (2)	7727-37-9	EPA 300.1
Nitrate + Nitrite (sum as nitrogen)	mg/L	10 (1)		14797-55-8	EPA 353.2

Nitrite (as nitrogen)	mg/L	1 (1)	0.4 (2)	14797-65-0	EPA 300.1
Perchlorate	mg/L	0.006 (1)	0.004 (2)	14797-73-0	EPA 314/331/332
Selenium	mg/L	0.002 (10)	0.001	7782-49-2	EPA 200.8
Thallium	mg/L	0.002 (1)	0.001 (2)	7440-28-0	EPA 200.8
Thiobencarb	mg/L	0.07		28249-77-6	EPA 527
Secondary					
Aluminum	mg/L	0.2 (6)		7429-90-5	EPA 200.7
Chloride	mg/L	500 (7)		16887-00-6	EPA 300.1
Color	units	15 (6)			EPA 110
Copper	mg/L	1 (6)	0.05 (8)	7440-50-8	EPA 200.7
Iron	mg/L	0.3 (6)		7439-89-6	EPA 200.7
Manganese	mg/L	0.05 (6)		7439-96-5	EPA 200.7
Methyl-tert-butyl ether (MTBE)	mg/L	0.013 (4)		1634-04-4	EPA 502.2/524.2
Odor -threshold	units	3 (6)			SM 2150B
Silver	mg/L	0.1 (6)		7440-22-4	EPA 200.7
Specific Conductance	µS/cm	1,600 (7)			SM 2510 B
Sulfate	mg/L	500 (7)		14808-79-8	EPA 300.1
Thiobencarb	mg/L	0.001 (6)		28249-77-6	EPA 527
Total Dissolved Solids	mg/L	1,000 (7)			SM 2540 C
Turbidity	units	5 (6)			EPA 190.1/SM2130B
Zinc	mg/L	5 (6)		7440-66-6	EPA 200.7
Other Required Analyses					
Boron	mg/L	2.0 (13)		7440-42-8	EPA 200.7
Molybdenum	mg/L	0.01 (11)		7439-98-7	EPA 200.7
Sodium	mg/L	69 (12)		7440-23-5	EPA 200.7

Radioactivity							
Gross Alpha	pCi/L	15	(3)	3	(3)	SM 7110C	
Organic Chemicals							
(a) Volatile Organic Chemicals (VOCs)							
Benzene	mg/L	0.001	(4)	0.0005	(5)	71-43-2	EPA 502.2/524.2
Carbon Tetrachloride	mg/L	0.0005	(4)	0.0005	(5)	56-23-5	EPA 502.2/524.2
1,2-Dichlorobenzene.	mg/L	0.6	(4)	0.0005	(5)	95-50-1	EPA 502.2/524.2
1,4-Dichlorobenzene.	mg/L	0.005	(4)	0.0005	(5)	106-46-7	EPA 502.2/524.2
1,1-Dichloroethane	mg/L	0.005	(4)	0.0005	(5)	75-34-3	EPA 502.2/524.2
1,2-Dichloroethane	mg/L	0.0005	(4)	0.0005	(5)	107-06-2	EPA 502.2/524.2
1,1-Dichloroethylene	mg/L	0.006	(4)	0.0005	(5)	75-35-4	EPA 502.2/524.2
cis-1,2-Dichloroethylene	mg/L	0.006	(4)	0.0005	(5)	156-59-2	EPA 502.2/524.2
trans-1,2-Dichloroethylene	mg/L	0.01	(4)	0.0005	(5)	156-60-5	EPA 502.2/524.2
Dichloromethane.	mg/L	0.005	(4)	0.0005	(5)	75-09-2	EPA 502.2/524.2
1,2-Dichloropropane.	mg/L	0.005	(4)	0.0005	(5)	78-87-5	EPA 502.2/524.2
1,3-Dichloropropene.	mg/L	0.0005	(4)	0.0005	(5)	542-75-6	EPA 502.2/524.2
Ethylbenzene.	mg/L	0.3	(4)	0.0005	(5)	100-41-4	EPA 502.2/524.2
Methyl-tert-butyl ether	mg/L	0.013	(4)	0.003	(5)	1634-04-4	EPA 502.2/524.2
Monochlorobenzene	mg/L	0.07	(4)	0.0005	(5)	108-90-7	EPA 502.2/524.2
Styrene.	mg/L	0.1	(4)	0.0005	(5)	100-42-5	EPA 502.2/524.2
1,1,2,2-Tetrachloroethane.	mg/L	0.001	(4)	0.0005	(5)	79-34-5	EPA 502.2/524.2
Tetrachloroethylene (PCE)	mg/L	0.005	(4)	0.0005	(5)	127-18-4	EPA 502.2/524.2
Toluene	mg/L	0.15	(4)	0.0005	(5)	108-88-3	EPA 502.2/524.2
1,2,4-Trichlorobenzene	mg/L	0.005	(4)	0.0005	(5)	120-82-1	EPA 502.2/524.2
1,1,1-Trichloroethane	mg/L	0.2	(4)	0.0005	(5)	71-55-6	EPA 502.2/524.2
1,1,2-Trichloroethane	mg/L	0.005	(4)	0.0005	(5)	79-00-5	EPA 502.2/524.2
Trichloroethylene (TCE)	mg/L	0.005	(4)	0.0005	(5)	79-01-6	EPA 502.2/524.2
Trichlorofluoromethane	mg/L	0.15	(4)	0.005	(5)	75-69-4	EPA 502.2/524.2

1,1,2-Trichloro-1,2,2-Trifluoroethane.	mg/L	1.2	(4)	0.01	(5)	76-13-1	SM 6200B
Vinyl Chloride	mg/L	0.0005	(4)	0.0005	(5)	75-01-4	EPA 502.2/524.2
Xylenes	mg/L	1.750*	(4)	0.0005	(5)	1330-20-7	EPA 502.2/524.2
(b) Non-Volatile Synthetic Organic Chemicals (SOCs)							
Alachlor	mg/L	0.002	(4)	0.001	(5)	15972-60-8	EPA 505/507/508
Atrazine	mg/L	0.001	(4)	0.0005	(5)	1912-24-9	EPA 505/507/508
Bentazon	mg/L	0.018	(4)	0.002	(5)	25057-89-0	EPA 515.1
Benzo(a)pyrene	mg/L	0.0002	(4)	0.0001	(5)	50-32-8	EPA 525.2
Carbofuran	mg/L	0.018	(4)	0.005	(5)	1563-66-2	EPA 531.1
Chlordane	mg/L	0.0001	(4)	0.0001	(5)	57-74-9	EPA 505/508
2,4-D	mg/L	0.07	(4)	0.01	(5)	94-75-7	EPA 515.1
Dalapon	mg/L	0.2	(4)	0.01	(5)	75-99-0	EPA 515.1
Dibromochloropropane	mg/L	0.0002	(4)	0.00001	(5)	96-12-8	EPA 502.2/504.1
Di(2-ethylhexyl)adipate	mg/L	0.4	(4)	0.005	(5)	103-23-1	EPA 506
Di(2-ethylhexyl)phthalate	mg/L	0.004	(4)	0.003	(5)	117-81-7	EPA 506
Dinoseb	mg/L	0.007	(4)	0.002	(5)	88-85-7	EPA 5151-4
Diquat	mg/L	0.02	(4)	0.004	(5)	85-00-7	EPA 549.2
Endothall	mg/L	0.1	(4)	0.045	(5)	145-73-3	EPA 548.1
Endrin.	mg/L	0.002	(4)	0.0001	(5)	72-20-8	EPA 505/508
Ethylene Dibromide	mg/L	0.00005	(4)	0.00002	(5)	106-93-4	EPA 502.2/504.1
Glyphosate (Roundup)	mg/L	0.7	(4)	0.025	(5)	1071-83-6	EPA 547
Heptachlor.	mg/L	0.00001	(4)	0.00001	(5)	76-44-8	EPA 508
Heptachlor Epoxide	mg/L	0.00001	(4)	0.00001	(5)	1024-57-3	EPA 508
Hexachlorobenzene	mg/L	0.001	(4)	0.0005	(5)	118-74-1	EPA 505/508
Hexachlorocyclopentadiene	mg/L	0.05	(4)	0.001	(5)	77-47-4	EPA 505/508
Lindane (gamma-BHC)	mg/L	0.0002	(4)	0.0002	(5)	58-89-9	EPA 505/508
Methoxychlor	mg/L	0.03	(4)	0.01	(5)	72-43-5	EPA 505/508
Molinate	mg/L	0.02	(4)	0.002	(5)	2212-67-1	EPA 525.1
Oxamyl	mg/L	0.05	(4)	0.02	(5)	23135-22-0	EPA 531.1
Pentachlorophenol	mg/L	0.001	(4)	0.0002	(5)	87-86-5	EPA 515.1-3

Picloram	mg/L	0.5	(4)	0.001	(5)	1918-02-1	EPA 515.1-3
Polychlorinated Biphenyls	mg/L	0.0005	(4)	0.0005	(5)	1336-36-3	EPA 130.1
Simazine	mg/L	0.004	(4)	0.001	(5)	122-34-9	EPA 505
Thiobencarb (Bolero)	mg/L	0.07	(4)	0.001	(5)	28249-77-6	EPA 527
Toxaphene	mg/L	0.003	(4)	0.001	(5)	8001-35-2	EPA 505
1,2,3-Trichloropropane	mg/L	0.000005	(4)	0.000005	(5)	96-18-4	SRL 524M
2,3,7,8-TCDD (Dioxin)	mg/L	3 x 10 ⁻⁸	(4)	5 x 10 ⁻⁹	(5)	1746-01-6	EPA 130.3
2,4,5-TP (Silvex)	mg/L	0.05	(4)	0.001	(5)	93-72-1	EPA 515.1
Other Organic Chemicals							
Chlorpyrifos	ug/L	0.015	(11)			2921-88-2	EPA 8141A
Diazinon	ug/L	0.10	(11)			333-41-5	EPA 8141A

Sources:

Recommended Analytical Methods: <https://www.nemi.gov/home/>

Maximum Contaminant Levels:

Title 22. The Domestic Water Quality and Monitoring Regulations specified by the State of California Health and Safety Code (Sections 4010-4037), and Administrative Code (Sections 64401 et seq.), as amended.

- (1) Title 22. Table 64431-A Maximum Contaminant Levels, Inorganic Chemicals
- (2) Title 22. Table 64432-A Detection Limits for Reporting (DLRs) for Regulated Inorganic Chemicals
- (3) Title 22. Table 64442 Radionuclide Maximum Contaminant Levels (MCLs) and Detection Levels for Purposes of Reporting (DLRs)
- (4) Title 22. Table 64444-A Maximum Contaminate Levels, Organic Chemicals
- (5) Title 22. Table 64445.1-A Detection Limits for Purposes of Reporting (DLRs) for Regulated Organic Chemicals
- (6) Title 22. Table 64449-A Secondary Maximum Contaminant Levels "Consumer Acceptance Contaminant Levels"
- (7) Title 22. Table 64449-B Secondary Maximum Contaminant Levels "Consumer Acceptance Contaminant Level Ranges"
- (8) Title 22. Table 64678-A DLRs for Lead and Copper

(9) Title 22, Section 64678 (d) Lead Action level

http://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/lawbook/dwregulations-2015-07-16.pdf

California Regional Water Quality Control Board, Central Valley Region, Fourth Edition of the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins. Revised June 2015

(10) Basin Plan, Table III-1 (ug/L) (selenium in Grasslands water supply channels)

(11) Basin Plan, Table III-2A. 4-day average (chronic) concentrations of chlorpyrifos & diazinon in San Joaquin River from Mendota to Vernalis

http://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/sacsjr.pdf

Ayers, R. S. and D. W. Westcott, *Water Quality for Agriculture*, Food and Agriculture Organization of the United Nations - Irrigation and Drainage Paper No. 29, Rev. 1, Rome (1985).

(12) Ayers, Table 1 (mg/L) (sodium)

(13) Ayers, Table 1 (mg/L) (boron)

<http://www.fao.org/3/T0234E/T0234E00.htm>

(14) Requested by State Water contractors, no MCL specified.

California Regional Water Quality Control Board. PFAS Per-and Polyfluoroalkyl Substances.

(15) Testing Methods in California Drinking Water

<https://www.waterboards.ca.gov/pfas/>

revised: 29 April 2020

RECLAMATION

Managing Water in the West

Table 7. Approved Laboratory List for the Mid-Pacific Region Quality Assurance and Data Management Branch (MP-156) Environmental Monitoring and Hazardous Materials Branch (MP-157)

Alpha Analytical Laboratories, Inc.	<u>Address</u>	208 Mason Street, Ukiah, CA 95482
	<u>Contact</u>	Adam Angulo
	<u>P/F</u>	916-686-5190
	<u>Email</u>	adam@alpha-labs.com
	<u>Methods</u>	<i>Inorganics in Water, Organics in Water</i>
APPL Laboratory	<u>Address</u>	908 North Temperance Avenue, Clovis, CA 93611
	<u>Contact</u>	Chue Moua, Project Manager
	<u>P/F</u>	(559) 275-2175 / (559) 275-4422
	<u>Email</u>	cmoua@applinc.com; danderson@applinc.com;
	<u>Methods</u>	<i>Approved for inorganic and organic parameters in water and soil</i>

Basic Laboratory	<u>Address</u>	2218 Railroad Avenue Redding, CA 96001
	<u>Contact</u>	Josh Kirkpatrick, Nathan Hawley, Melissa Hawley
	<u>P/F</u>	(530) 243-7234 / (530) 243-7494
	<u>Email</u>	jkirkpatrick@basiclab.com (QAO and PM); nhawley@basiclab.com, mhawley@basiclab.com (invoices); poilar@basiclab.com (sample custody), khawley@basiclab.com (sample custody)
	<u>Methods</u>	<i>Approved for inorganic/organic parameters</i>

Brooks Applied Labs	<u>Address</u>	18804 North Creek Parkway Bothell, WA 98011
	<u>Contact</u>	Jeremy Maute
	<u>P/F</u>	(206) 632-6206
	<u>Email</u>	Jeremy@brooksapplied.com
	<u>Methods</u>	<i>Approved for selenium speciation and mercury speciation in water, solids, and tissue</i>

California Laboratory Services	<u>Address</u>	3249 Fitzgerald Road Rancho Cordova, CA 95742
	<u>Contact</u>	Scott Furnas
	<u>P/F</u>	(916) 638-7301 / (916) 638-4510
	<u>Email</u>	janetm@californialab.com (QA); scottf@californialab.com (PM)
	<u>Methods</u>	<i>Approved for inorganic, organic, and microbiological parameters</i>

Calscience Environmental Laboratories	<u>Address</u>	7440 Lincoln Way; Garden Grove, CA 92841
	<u>Contact</u>	Don Burley
	<u>P/F</u>	714-895-5494 (ext. 203)/714-894-7501
	<u>Email</u>	DBurley@calscience.com
	<u>Methods</u>	<i>Approved for inorganic and organic parameters in water, sediment, and soil.</i>

Eurofins Eaton Analytical, Inc. (formerly MWH Laboratories)	<u>Address</u>	750 Royal Oaks Drive Ste. 100 Monrovia, CA 91016 USA
	<u>Contact</u>	Linda Geddes
	<u>P/F</u>	(626) 386-1100, Linda - (626) 386-1163, Rick - (626) 386-1157
	<u>Email</u>	LindaGeddes@eurofinsus.com
	<u>Methods</u>	<i>Approved for all inorganic, organic, radiochemistry, total coliform, & E. Coli parameters in water</i>

Fruit Growers Laboratory	<u>Address</u>	853 Corporation Street Santa Paula, CA 93060 USA
	<u>Contact</u>	David Terz, QA Director
	<u>P/F</u>	(805) 392-2024 / (805) 525-4172
	<u>Email</u>	davidt@fglinc.com
	<u>Methods</u>	<i>Approved for the analysis of inorganic parameters in water and soil</i>

Moore Twining Associates, Inc.	<u>Address</u>	2527 Fresno St., Fresno, CA 93721 USA
	<u>Contact</u>	Juli Adams (Lab Director), Maria Manuel (QA Manager)
	<u>P/F</u>	(559) 268-7021
	<u>Email</u>	julia@mooretwinning.com, mariam@mooretwinning.com
	<u>Methods</u>	<i>BOD</i>

Oilfield Environmental & Compliance	<u>Address</u>	307 Roemer Way Ste 300, Santa Maria, CA 93454
	<u>Contact</u>	Will update when assigned a PM
	<u>P/F</u>	805-922-4772
	<u>Email</u>	info@oecusa.com
	<u>Methods</u>	<i>(Approval Pending) Hazardous Waste in Water/Soil</i>
Pacific EcoRisk	<u>Address</u>	2250 Codelia Road, Fairfield, CA 94534 USA
	<u>Contact</u>	Stephen L. Clark
	<u>P/F</u>	(707) 207-7760 / (707) 207-7916
	<u>Email</u>	slclark@pacificecorisk.com
	<u>Methods</u>	<i>Approved for acute and chronic toxicity.</i>
Physis	<u>Address</u>	1904 East Wright Circle, Anaheim, CA 92806
	<u>Contact</u>	Will update when assigned a PM
	<u>P/F</u>	1-714-602-5320 ext 204
	<u>Email</u>	markbaker@physislabs.com
	<u>Methods</u>	<i>(Approval Pending) Inorganics in Soil</i>
South Dakota Agricultural Laboratories	<u>Address</u>	Brookings Biospace, 1006 32nd Avenue, Suites 103,105, Brookings, SD 57006-4728
	<u>Contact</u>	Regina Wixon, Nancy Anderson, Jessie Davis (sample custodian)
	<u>P/F</u>	(605) 692-7325/(605) 692-7326
	<u>Email</u>	regina.wixon@sdaglabs.com, Nancy.Anderson@sdaglabs.com, jessica.davis@sdaglabs.com
	<u>Methods</u>	<i>Approved for selenium analysis</i>

**Western
Environmental
Testing
Laboratories**

<u>Address</u>	475 East Greg Street # 119 Sparks, NV 89431 USA
<u>Contact</u>	Scott Thompson (Client Services), Andy Smith (Lab Drctr)
<u>P/F</u>	(775) 355-0202 / (775) 355-0817
<u>Email</u>	scottt@wetlaboratory.com, andy@wetlaboratory.com
<u>Methods</u>	<i>Approved for inorganic parameters (metals, general chemistry) and coliforms.</i>

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